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February 23, 1995

BY HAND

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Mr. William Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

DOCKET FILE COPY ORIGINAL

Re: Ex Parte Notice, CC Docket No. 92-

Dear Mr. Caton:

In accordance with Section 1.1200 et seq. of the Commission's rules, this is to advise the Commission that on Wednesday, February 22, 1995, Rene Martinez, Jerry Vigil and Kathryn Hutton, Esq. met with Tom Tycz, Chief of the Satellite & Radiocommunication Division, International Bureau, Susan E. Magnotti, Esq., Wireless Bureau, Robert James, Wireless Bureau, Donna Bethea, International Bureau and Jennifer Gilsenan, Esq., International Bureau to discuss Mr. Martinez's proposal for spectrum sharing between satellite and terrestrial communications services using temporal and spatial synchronization. The attachments to this letter were used in that discussion.

An original and three copies of this letter, with attachments, was filed with the Commission as of the date hereof, and a copy delivered to each of the above-named Commission personnel.

Sincerely,

Kathryn A. Hutton

No. of Copies rec'd 023
List A B C D E

Spectrum Sharing at 28GHz using Spatial and Temporal Synchronization and a New Digital LMDS System

Presentation to the FCC
by
René Martinez

Invention

Name:	Method and apparatus for spectrum sharing between satellite and terrestrial communication services using temporal and spatial synchronization
Owners:	Cornell Research Foundation
Inventors:	R. Martinez and R. Compton
Contact:	Kathryn Hutton Ross & Hardies 888 16th St. Washington DC 20006-4103 202/296-8600

Wide Beam Illumination

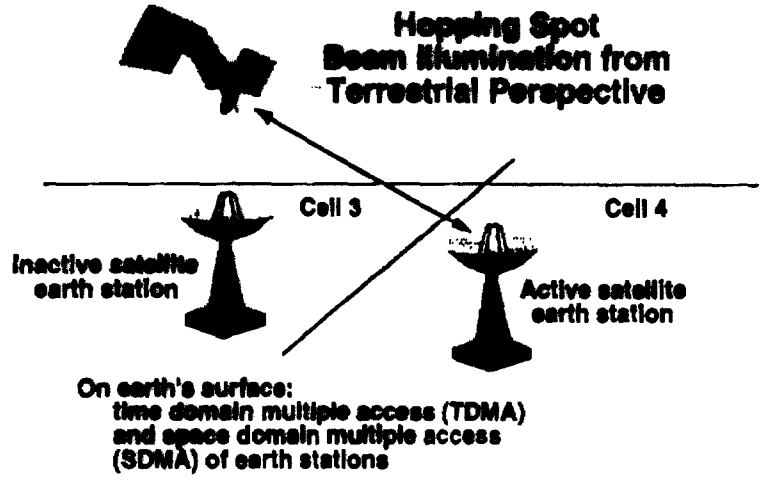
Earth station:
high power, large antenna,
continuous operation

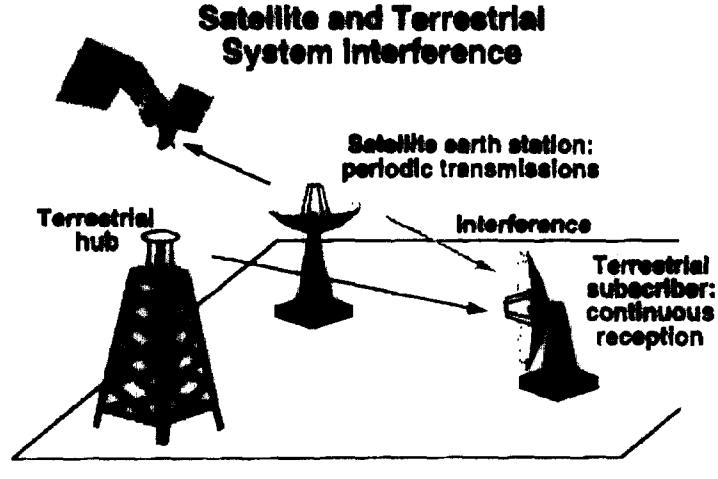
Low density of earth stations

Hopping Spot Beam Illumination

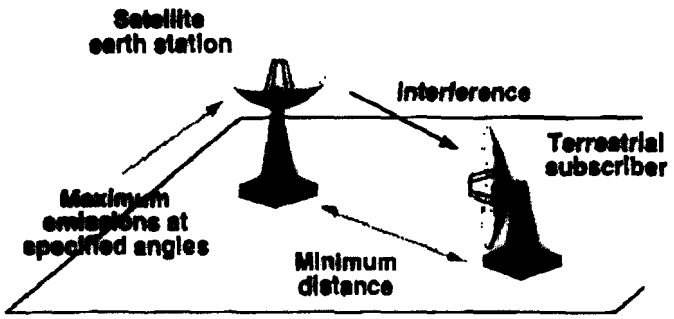
Earth station:
low power, small antenna,
periodic operation

High density of earth stations;
ubiquitous deployment


Hopping Spot
Beam Illumination from
Terrestrial Perspective
Cell 3
Cell 4
Inactive satellite
earth station
Active satellite
earth station
On earth's surface:
time domain multiple access (TDMA)
and space domain multiple access
(SDMA) of earth stations

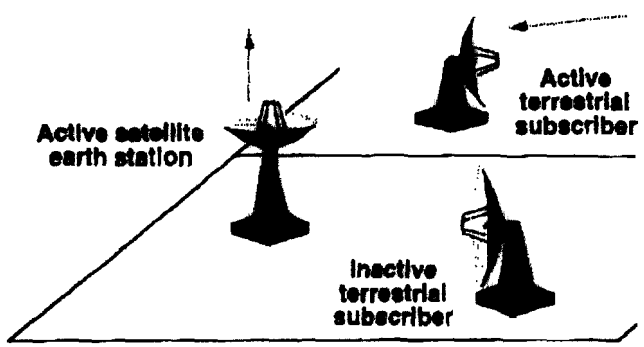

Satellite and Terrestrial
System Interference
Satellite earth station:
periodic transmissions
Terrestrial
hub
Interference
Terrestrial
subscriber:
continuous
reception

Spectrum Sharing by Antenna Locations and Specifications



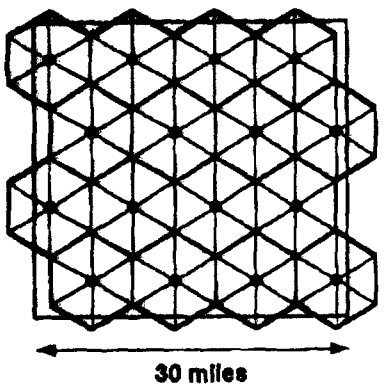
Terrestrial analog system

Spectrum Sharing by Temporal and Spatial Synchronization



Terrestrial DIGITAL system

Spatial Synchronization



— Nominal satellite cell
• Terrestrial hub
— Terrestrial boundaries
— Satellite and terrestrial boundary

Preliminary Specifications of Digital LMDS System

Architecture:	Asymmetrical broadcast/switched system
Modulation:	16QAM
Sectors in cell:	6
Cell diameter:	2-4 miles
Broadcast data rate:	25Mbps selectable between 500Mbps (HDTV compatible and 150 NTSC chns)
Switched data rate:	2Mbps (interactive video)
Switched lines:	250 per sector
Hub capacity:	15,000 switched 2Mbps lines assuming 10:1 concentration ratio